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Obstetrical Trajectories.

On training women/bodies for (home)birth.

Bernike Pasveer

Madeleine Akrich

2001, In de Vries, R., Benoit, C., van Teijlingen, E. R. et Wrede, S., ed, *Birth by Design*, London, Routledge.

Birth - Introduction

Dutch women should birth their babies at home more often. At least this is what Mrs. Borst, the Dutch minister of health affairs thinks, and she has provided quite a sum of money to promote birth at home. In the Netherlands, insurance companies, midwives, and spokespersons of women's rights tend to favor home birth. As noted in earlier chapters, the Dutch obstetrical system rests on the assumption that pregnancy and birth are normal life-events. This means that during pregnancy and birth, women are attended by a primary caretaker: a midwife or general practitioner.¹ These "first-line" caregivers assess their clients continuously on the basis of a list of obstetric indications. This list places women in one of three categories: low risk, medium risk and high risk. Women in the first category need not see any other medical professional but their midwife and they may choose to give birth at home or in hospital. Women in the third category are handed over to gynecologist and hospital right away and usually stay under specialist care until after their child is born. Women in the second category – meaningfully coined the 'gray area' by midwives – are affected by some medical or other problem (or the suspicion thereof) that is not quite grave enough to hand them over to a gynecologist and a hospital (the so-called "second line"). These women must be examined by a specialist and, depending on the diagnosis, they go back to midwife care or stay under the specialist's supervision.²

Thus the Dutch system functions on the basis of a continuous and prescribed selection of its clients, according to which everyone is assumed to get a unique and appropriate combination of professional care, technologies, and place. Because Dutch obstetrics assumes that pregnancy and birth are considered normal until there is evidence of the contrary, midwives, as well as gynecologists, practice an appropriate kind of 'expectant' care: one tries to interfere/intervene in the birth process as little as possible, and midwives try to keep women out of the second line as long as possible. Interestingly, research shows that the ways in which this expectant obstetrics is practiced vary widely both between midwives and between hospitals/obstetricians (Pel & Heres 1995; Wiegers 1997).

Dutch obstetrics, both in theory and in practice, has something of a hard time surviving in the midst of new prenatal technologies, women's 'demands' for hospital birth and epidurals³, the shortage of practicing midwives and maternity nurses. Dutch women tend to have their first pregnancy later in life, which statistically implies more complications, and according to the Obstetric Indications List (referred to as the "VIL" in Dutch), midwives are to refer a primiparae older than 38 to a specialist obstetrician.⁴ Another reason for the gradual decrease in the percentage of home births in the Netherlands⁵ is the increased diagnosis and treatment of fertility problems. An IVF pregnancy is classified as high risk, and is usually taken care of by a gynecologist from beginning to end.

But there is more. The percentage of women referred during labor is going up. As the table below shows, almost all percentages of referrals increased between 1989 and 1993, but two reasons for this increase are particularly interesting: insufficient progress of first stage and second stage.

TABLE 1

Source: Obstetrics in the Netherlands, Trends 1989-1993, Utrecht: SIG Health Care Information, p. 75.

It must also be noted that many more 'low risk' women are choosing for a hospital delivery with their midwife for reasons of comfort, safety, or because many of their peers have done the same (Wiegers & Berghs 1994; Manshanden 1997; Hingstman et. al., 1993). Research tends to show that the place of delivery influences its medical and obstetrical outcomes (Pel & Heres 1995; Wiegers 1997).⁶ This means that low-risk women's safety seems not to improve in hospital. The nearness of obstetricians and medical apparatus, and perhaps the atmosphere of the hospital too, change the delivery more than the slogan 'a polyclinic delivery is simply a relocated home birth' suggests.⁷

But why do women want to give birth in hospital with their midwife? And how is it that the percentage referrals during planned home births has increased steadily?⁸ Is the best strategy to promote home birth a campaign to make women conscious of the value and safety of home birth? How safe is it for women who want to give birth at home? Can midwives still 'stand by with their hands on their back and wait quietly?' (Croon 1998: 245).

In this chapter we examine why it is that women plan to deliver in hospital, and why they are increasingly referred to specialist care during labor. Our hypothesis is that a *marked* rupture tends to occur in the obstetrical trajectory designed for women, and that this rupture inscribes itself in the ways women (and midwives) (fail to) trust the working of an

unassisted body during labor. During pregnancy, (Dutch) women's bodies are increasingly educated in trajectories in which markers of their pregnancy are produced outside and separated from their bodies, while no obvious efforts are made to reconnect these markers to the embodied pregnancy. Increasingly, women's obstetrical trajectories are marked by ultrasound, triple test, and amniocentesis, all of which inform a woman about her body, its health, the growth and well being of its little inhabitant. Women, and midwives too, experience the pregnancy at least partly through these markers. During home birth, however, these and other excorporate traces of how someone is doing are principally absent. We insist that these markers, these prenatal technologies, are not neutral: like other medical technologies, they produce a specific distribution of competencies, potentialities, and trusts between those who participate in their functioning. Thus during pregnancy, a regime of visual and graphic surveillance is increasingly installed, whereas during home birth the woman has just her body and midwife to inform her of where she is going. It is this disjuncture on the level of the body-knowledge that might be responsible to some extent for the difficulties of home birth.

Of course, our hypothesis is not meant to do away with other explanations of the threats to Dutch obstetrics. However, by setting up our thesis, we do wish to be critical of some views of medical technologies and we are trying to work on a different conceptualization of the pregnant body / the body in labor, one which sees the body as an entity which is 'learning to be affected'⁹ by a specific, defined trajectory and the markers thereof. Medical technologies – used or unused, prenatal or antenatal – are not neutral providers of insight into a stable body. According to views from the sociology of technology, we argue that medical technologies inform what is diagnosed, changing the body by the act of diagnosis. In that sense, machines are never neutral, nor are they to be seen as manifestations of underlying ideologies. Just as well, bodies are never 'given'. In order for any medical technology to work, those who participate in the performance of that technology – physicians, patients, bodies, professionals, institutions – are brought in line with the apparatus and vice versa. In every medical setting – be it of a midwife and her client at a home birth, or of a gynecologist and a patient at a cesarean section with an epidural – specific definitions and distributions of competencies occur between the various participants.¹⁰ We examine how this process works in present day Dutch obstetric practices.

Our argument elaborates on three related themes. The first is that of *trajectories* that emerge through pregnancy and birth and that relate a woman to obstetrics through a series of associations and markers. Here we suggest that what is designed for women tends to become ambiguous in the Dutch context. The second theme is that of how *technologies* work: we claim that medical technologies are neither good nor bad *a priori*, but that it is through

their specific use that practices are established which are, or are not, desired. For example, ultrasound has become a very 'normalizing' technology during pregnancy for a number of reasons and this may happen with other prenatal diagnostics too depending on the infrastructure that further construes a technology's working. Our third theme concerns women's bodies. We wish to claim that bodies, and the way the processes of pregnancy and birth occur, are not *given and ready to be discovered*, but are constituted by and constitutive of the trajectories and apparatus that mark them. Bodies are trained, or educated, and during that process they become 'loaded' with experiences and competencies which match the trajectories designed for them. They 'learn to be affected' – and in contemporary Dutch obstetrics this happens in an ambiguous manner. By using data from French obstetrics, we suggest here this particular rupture is not produced. With regard to what women and bodies learn and are affected by, French obstetrics performs more coherence. We do not suggest that French obstetrics is therefore to be the preferred system. We do offer our trilogy of trajectories, technologies and bodily affections as a 'grille' of diagnosis, analysis and precaution for those who wish to change their country's obstetrics: care about competencies and the ways they are affected through specific and situated technological trajectories!

Homebirth in Holland – a description

The start of a delivery can take a long time. 'Looking back, I have had contractions for days, I was dilating when I was doing the shopping!'¹¹ Dutch women are told by their midwife that 'as long as you are in doubt, real contractions just have not started yet. Real contractions are so unambiguous and painful, you cannot miss them' (Smulders & Croon 1996: 21). When a woman has regular contractions, when there are signs or feelings of unease, or when the waters break, a woman who planned home birth is to call her midwife. 'My midwife said she would be there at five o'clock. But it hurt so much that I called her again and I said 'if this continues like this for another 15 minutes, you *have to come*. But she got there before I could call her again. I had dilated eight centimeters in half an hour.' 'I had contractions every half-hour and only in my back. I thought it was strange that I only had contractions in my back and none in my belly. I called R and she told me that this could happen. I was to call her again if I had contractions every four minutes. She said that could take a while and that the baby might come only after the weekend.' 'It started at night when the waters broke. The midwife had said we need not call at night if the waters were clear. They were, but there was blood in it, so we called her. She said there was nothing to be worried about, and we should go back to bed.'

Between the onset of labor and the nearing of full dilation, the midwife may visit her client just once or a number of times. Upon visiting, her work consists of doing an internal examination to check upon the progress of labor, listening to the baby's heartbeat with a "doptone",¹² and to get an impression of the situation: is her client at ease or very upset, is she managing labor well or is she panicking? She might also suggest that her client try another position for labor. 'When she arrived I was taking a shower. She sent me back to bed because she could see I was in much pain and could not walk anymore. The two of them (partner and midwife) helped me from the shower to bed.' 'No sooner had the midwife gone than I got ill, really ill, fever, throwing up. I had to go to the bathroom, to sit on the loo, and that was a good position. So when she came later on, she saw me there, and she saw that was ok for me. I asked whether it was not dangerous, could the baby not be born with me sitting there on the loo, and she said, no, we'll get you up on a birthchair when it's time.' Upon the nearing of full dilation, the midwife stays. This means that during labor, the woman is assumed to be able to do without the midwife's presence and interventions. None of the others present during those hours can assist her physically with managing contractions: the environment (including the partner and material objects like the shower, the bed, furniture) can be mobilized only to afford the woman-in-the-body the power to concentrate upon what happens. This can mean different things. Most women follow preparation courses, where they learn specific breathing techniques, positions and 'things to say'¹³ in order to manage labor. 'I went to yoga and to pregnancy gym. The things we had learnt during yoga were of more use than the gym. We did more exercises for breathing "low." The pregnancy gym was more talking about your feelings and that was fine too. During gym we had put a few exercises on paper, like what to do. So I had those papers next to me during labor, and I tried out these things. Like breathing thoroughly, or like choosing a position to that my husband could massage my back.' 'During labor, I did a sort of a yoga or anyway a number of basic yoga things. There were other things too. Things like that. It is not that you do exercises during labor, but that you pay attention to your breathing.'

It is our contention that these preparation courses are an important chain in the 'normality trajectory' as it is designed for pregnant women, as they prepare for mobilizing assistance, as it were, from the body and the environment that *is* present: the partner, the shower, the breathing, a variety of positions. Yet they do so more in terms of setting up a disposition in which the woman and the body and their environment learn to be affected by labor and birth and to manage, rather than in terms of giving them concrete information that can be 'applied' to get through labor.

When a woman has reached full dilation, she is informed by her midwife who tells her that she can start pushing. Yet this phase – called the transition stage by professionals – is quite intricate. Women feel things changing, they have more difficulty in 'puffing away' contractions, pressure on the perineum increases, and often they tell the midwife they are

unable to manage contractions at this point, that they 'need to go to the bathroom'. Some women report that the stage of expulsion, in which they must push with contractions instead of puff through them, is a relief, others find it the worst of all. 'I did not want to go on with it. It hurt. But on the other hand, it was ok. R encouraged me. She told me she could see the head. I wanted to touch it and I asked her if I could. I touched the baby's head.' 'Then at a certain point I couldn't take the contractions anymore and I could start pushing. Q: Didn't she first have a look whether you had full dilation? A: No she said that the last time it had also gone so fast that she could see that I could just start pushing. Let it go... And it did indeed go very fast. Q: Didn't she do an internal at all? Only once when you hadn't dilated fully yet? A: No, but she said that the birth was so nice that she didn't need to do anything.'

During the last stage, the midwife is present, and she is referred to a lot in women's stories. Women hardly notice that the midwife unpacks her bag with instruments. 'You know, it was only afterwards that I saw this sheet with the instruments, for cutting, and sewing and things. She had put it up behind a bedcover or so.' It is the midwife's ways of going about and her actions that are remembered: her encouragement, the fact that after most pushing contractions she listens to the baby's heart, the hurt of the baby's head 'standing', and the period just after the baby is born. 'Q: Can you remember any of the things K. had brought with her? A: No idea. I don't think she had that many things in the room. I cannot remember her having displayed a whole "tool kit". Anyway she had the things for suturing and that thing she used to listen to the child's heartbeat. Q: Could you listen as well? A: No. I actually found her doing that rather annoying. Q: Why? A: I felt that it only distracted me. Q: That it disturbed you? A: Yes. "Let's just get on with it quickly because...". But I didn't say that to her. Q: Do you know when she did that? During the pushing? A: I'm not sure. Anyway, she did it a couple of times. Especially in the beginning and then towards the end when the head was already out. By then the contraction came quite quickly one after another, so then it was a question of... I believe she did it during the first half an hour of the pushing.' 'She left the umbilical cord attached for a while. She even put the baby to have a bath with the cord still attached. She makes it walk on your belly. You see that it was still attached to the chord.' 'She was between my legs and I had to take her myself. I think that just the feet were still inside and I had pull her. Q: Did K. tell you to do that? A: She encouraged me but I didn't *have to* do it. Q: But you didn't intuitively want to do it? A: Well, I was just glad that she was born.'

We see appearing a delivery with a number of participants, some temporarily present, some stay for the whole thing. Markedly, the midwife only stays for the last part, which implies that labor, during home birth (as well as during hospital birth) is something that must be accomplished by the woman. The

‘disposition’ within which she and her body are afforded this, is not empty of obstetrical markers, but neither is it filled only with obstetrics. The woman is expected to work in an environment that deliberately carries no permanent obstetrical markers that tell her how she is doing, and into which every now and then the midwife appears and produces obstetrics. Yet the manner in which she does this, and the temporary nature of the explicit obstetrical information she provides is meant to be continuous with the embodied work of labor rather than to lift things out of that body and make them into an external reference for the woman to look at. Birth stories recount at once the markers produced by the midwife – ‘She did an internal and it appeared that I was at 1 cm only!’ ‘Within an hour I had gone from 2 to 9 cm!’ – and the markers present or made present in the setting itself – ‘The teapot too worked good: at every of its rounds I was to say while puffing which colour it was, so M. was surprised when he heard me puff ‘yellow’, ‘blue’, ‘orange’.’ ‘I chatted, laughed, sighed and puffed the time away, which at some points went very fast and at others seemed to stand still. I had no idea, in fact, of time. M. was sitting next to my bed on the floor and did his best to sigh and chat and laugh with me. Sometimes he’d squeeze my hand to keep me with the right breathing, for I’d loose the rhythm at some points.’

Home birth is ‘alone birth’ – it proceeds and must proceed in/as an obstetrical setting in which obstetrical markers are hardly explicit and if they are, this is only temporarily so. Women are expected to be able to ‘manage’ that situation, to be able to produce, with the mobilization of anything useful in their environment and in their bodies, a setting that confirms and produces a ‘normal’ delivery. The explicit obstetrical markers – the breaking of the waters, the onset and progress of labor, the midwife’s presence and the examinations she is required to do in order to check upon the assumption of normality – are at once explicit and implicit: they are known to happen and they are also known to be part of ‘normality’.

We would like to suggest that the possibility of such an event, is not just a matter of organizing the right care and the right ‘consciousness’ of a woman and her environment, but also a matter of organizing a setting in which a woman and her body have learned exactly this: to be able to be affected by a process which is at once new, painful, surprising (certainly if it concerns a woman’s first delivery), maybe frightening, and at the same time, ‘doable’, normal, no need to worry. A woman must work through labor with her

trained body, her trained partner, her trained midwife – yet it is only through her ways of doing and through acquiring temporal access to the body that the midwife can inform herself about the situation. As soon as she stops listening to the baby's heart, it returns back into the body. At no point, as long as normality is guaranteed through these very same markers, are traces of the delivery taken out of the body and, as it were, put on the wall to look at. The concentration on/in the body is crucial, and is constituted by the environment, the work of the midwife but also her absence during long periods of labor, the instruments she can use, and the work of the other participants.

So a Dutch delivery assumes and organizes a woman-and-a-body who is able to deliver a baby on her own. And women embody this ability for being affected by the event, we argue, as an effect of the obstetrical trajectory that is designed for that. 'Natural' birth is not something that occurs all by itself – it is (or has become) just as much an obstetrical arrangement as the 'technical' deliveries elsewhere. There is nothing wrong with that, or 'unnatural' – we have long stopped treating the natural as self-evident and the cultural as in need of explanation. But it is precisely because the natural, or the normal, have become 'equipped' that we need to study that equipment, in order to find out what goes wrong and what can be done better.

We believe that the current concern over Dutch obstetrics has to do with the fact that no one has paid attention to the ways the body as an entity 'learns' and becomes 'loaded' with experiences, expectancies, and abilities. Most people assume that learning is done by the brains, the consciousness – hence efforts in Dutch obstetrics to render women 'conscious' of the values of home birth. But it is also the body that must be able to be 'affected' by home birth, that must be trained to do so. Thus it is crucial to take a look at the training the bodies of Dutch women receive. What does the trajectory leading up to a possible home birth look like? Does it (still) lead up to the ability of normal and "incorporated" birth?

Pregnancy in Holland – part of trajectory of associations

A pregnant woman visits a midwife some 12 to 15 times during pregnancy, with visits increasing in frequency towards the end of pregnancy. At the first visit, the midwife takes an extended anamnesis. Some blood is taken (by the midwife or in hospital) for the

determination of specific values. At later visits, a similar series of examinations is done everywhere. The woman is weighed, the belly is measured and palpated, the position of the baby is determined, its heartbeat is listened to with a doptone, the woman's blood pressure is taken, often her urine is checked for glucose, and at particular points her blood is checked for anemia. Usually at all visits, time is taken for asking questions, reporting worries and experiences. 'She did the normal things. You know, weighing, feeling my belly, getting my pressure, asking how 'we' are doing, things like that.'

Most women follow pregnancy gym or yoga, but not all do. 'I am a professional singer, so I thought I could do without breathing techniques, and I really was not looking forward to the chatty stuff at pregnancy gym.' 'I've done it the first time, so I know what it's about.' Women also tend to read a lot about pregnancy and birth. 'I have read everything that I could get my hands on, really everything.' And, of course, they have their mothers and friends to share experiences with.¹⁴ Thus, women's world of information, expectations and training consists of various sources – of which the midwife is an important one.

The explicitly obstetrical part of the trajectory of a low risk pregnancy, in its minimal and standard version, and as long as it remains low risk, passes through the midwife and the instruments she uses to check upon health and growth. So here, like in the home birth, the knowledge of what is happening circulates in a tiny circuit. Hardly any lasting signs of someone's pregnancy are produced that can travel without the woman's body. Thus the midwife keeps record on a standard form about the markers of the pregnancy, sometimes she keeps a written memory of things that require special attention – and that is all. The woman carries a copy of the form so that in an emergency any medical person is able to see her trajectory thus far.

This minimal version appears to be rather continuous - at least in terms of what happens to the body – with the event of home birth. In both situations, knowledge circulates between midwife and woman/body, and in neither situation are obstetrical articulations produced that come to lead a life as an external referent of the pregnancy. The dispositive is thus small: midwife and client are related and interdependent for their information. Moreover, this configuration is practically identical to the obstetrical one in which home birth takes place: there too, we find a woman, her partner, her home environment, and the midwife with apparatus that cannot produce traces of the delivery by taking them out of her client's body.

Yet this small circuit of bodies of knowledge tends to become extended in ways that may disrupt this continuity.¹⁵ Over the last decade, the fetal ultrasound has become a very popular marker of the pregnancy in the Netherlands too. Women will often pay for an echo as a souvenir of the pregnancy, and one or two 'official' ultrasounds per pregnancy are becoming a part of 'normal' practice. In the Netherlands, health insurance companies pay for two ultrasound scans per pregnancy. Some midwifery practices have acquired their own

ultrasound apparatus. Most, however, refer their clients to a nearby hospital to have a scan made. It also appears that whereas some midwives take the first blood sample themselves and send it in to a laboratory, most others have this done in hospital. In addition, an impressive body of new prenatal diagnostic technologies has (recently) made an appearance as a possible articulator of any pregnancy.

It is here that we see a possible rupture of the trajectory that performs pregnancy and birth in the Netherlands. Or rather, that we slightly re-read a threat that is also indicated by others (Katz Rothman, this volume; Katz Rothman 1994; Wiegers 1997; Arney 1982): of medical technologies tending to colonize normal pregnancy and childbirth by redefining them through their very use as high risk events. A technology like the amniocentesis, for example, is used to examine pregnancies of women over 36 years of age. Without suggesting that this should not be done, it is good to know that the very presence of this prenatal diagnostic, turns some women's pregnancies into the category of 'increased risk'. Research has shown that the mere belonging to such a category, changes the experience of the body as a safe place to be (Popkema, Pieters & Harbers 1997). Many new prenatal technologies that can produce new articulations on risk during pregnancy or birth, appear to be so complex or unregulated, that they tend to become owned by obstetrical specialist (De Vries, Horstman & Haveman 1997).

None of these new technologies, we suggest, just sheds new light on old, given and unchanging processes, they don't just make them better-known. Rather, they make for changes in the very ontology of pregnancy: they change trajectories, they change pregnancies and their markers, and they change the content and the distribution of competencies. Prenatal trajectories that consist of visits to a series of care-givers, of examinations by a variety of people and apparatus residing in different and rather unconnected places, and of a number of dossiers that contain crucial information about the pregnancy but that are not 'owned' by the pregnant woman, are different from trajectories that consist of visits to a midwife, examinations within her practice, and a dossier that is carried around by the woman herself. The first kind of trajectory makes for a referent – the pregnancy – which is distributed over a number of actors who are related to but not physically attached to the woman. The second kind of trajectory makes for a pregnancy which remains in the body, which loads the body with abilities, knowledge and confidences which come in handy at homebirth. They create as an external informant the midwife – but she's present during labour too.

We suggest that it as Dutch obstetrics tends to allow more and more pregnancies to become informed by the first trajectory, it also feeds into a woman-body and a midwife which/who is less and less able or prepared to have a home birth which must do without all these external and unembodied points of reference.

It is not our intention to say that new prenatal technologies in and of themselves are bad and should not be used. We rather suggest that their use will in all cases reorder the pregnant body. What is more, we think that the increasing excorporation of the pregnancy, combined with the enlargement of the circuit within which knowledge of a specific pregnancy travels, and with the differences in kind between markers that can travel without a body and markers that cannot, will produce a woman-and-a-body that are increasingly unprepared, quite literally, to be able to be surprised by the event of home birth in which they must get along without this circuit of excorporated information about their bodies.

Here other obstetrical organisations come to mind. In France, for example, almost all women deliver in hospital. Although there is quite some variety within the country and between hospitals/clinics, a large percentage of births take place in large hospitals, the woman lying on her back or side on a (small) bed, connected to a monitor that registers fetal heartbeat and contractions, an infusion which regulates strength and rhythm of contractions, and an epidural which takes away labor pain and which usually remains at work until after the delivery – which requires a woman to push the baby out on command of the midwife.

Birth is thus a highly distributed event, with a lot of excorporal markers: contractions are sensed by the monitor and regulated through the oxytocine administered by the infusion instead of through the oxytocine produced in the body, pain is 'unsensed' through the epidural. Birth is not performed without the woman or/and her body, however. Rather, they are partners in a collective that cannot function when she is unwilling or unable to participate.

But so is pregnancy in France: a trajectory which distributes the pregnancy over a series of participants. Three ultrasounds are routine, a triple test is too, and the amniocentesis changes status: which some time ago was indicated for women over 38 years, it now becomes standard for every woman whose triple test is 'positive'. Women see gynecologists as well as midwives and general practitioners for different 'aspects' of their pregnancies. Preparation courses always contain one or more information sessions with an anaesthetist about the pro's and con's of the epidural, and training sessions for learning to push without sensing contractions.

This very global overview is not meant to make us sigh and be horrified by French obstetrics, or to make us long for more of it elsewhere. It is meant to indicate that trajectories as they tend to install themselves more and more in Dutch obstetrics, create assisted and distributed pregnancies that are coherent with the assisted and distributed deliveries as they are practiced in France, rather than with the lowly assisted and quite centered deliveries that the Dutch tend to be in favour of. It is also meant to say that as the

Dutch rearrange pregnancy, as they reorganize its referent (before the woman as well as before the midwife) from something in the body to something in many places and forms (an ultrasound, a DNA-code, a microscopic image, a heart beating, a belly growing), women will come to have different bodies and they will have bodies that are experienced differently, both by them and by midwives. A distributed pregnancy is less apt to lead up to the centered event a homebirth seems to be.

Conclusions

Although it may seem an evident conclusion, we do *not* wish to conclude that medical technologies must stay out of pregnancy and childbirth. Rather, our argument is a plea to evaluate the ways in which the 'minimal' care provided for low risk pregnancies and deliveries co-constitute a coherent trajectory and trained body which is prepared for home birth. And it is an argument to include in our evaluations or prospective studies of the implantation of new prenatal diagnostic technologies, this question of the trained body: if one expects women to be able to (desire to) deliver 'alone', and if one expects to be able to guard birth 'alone' as a midwife, how must one use the procedures and the apparatus with which a woman and a baby's health are monitored? How can one prevent women from needing all kinds of external referents and informants by the time she is to be loaded with referents and informants herself?

We argue that it matters who, how, and with what means pregnancy and birth are monitored. Specific diagnostic settings make for specific articulations and distributions of potentialities and competencies. Thus a French woman, who gives birth in hospital under epidural, watched by electronic monitoring, must be able to lay still and push on command, whereas a Dutch woman who gives birth at home must be able and trained to have a body that can give birth on instinct; to work on the basis of a 'body that knows exactly what it must do and when' (Smulders & Croon 1996: 15). Note that we do not assume that having such a body comes 'naturally'. On the contrary, we argue that it comes through deliberately training of a woman and a body, and of those who are with her¹⁶ and the power to have an instinct and to know what the body does, to be prepared to be affected and surprised by the setting in which a baby is born.¹⁷

Remedies would be not to be anti-technological: the example of ultrasound shows that disembodied markers, to use Duden's terminology, are very much able to become embodied.¹⁸ Of course, in the process, the body changes – but it does not (necessarily) go from 'natural' to 'colonized by technology'. The popularity of ultrasound images, their association with the normality of pregnancy rather than with the search for pathologies,

with seeing into one's own body rather than in a strange, abstract and unreadable reduction, shows that knowledge can be taken out and put back into the embodied experience.¹⁹

We think that if Dutch obstetrics wishes to rescue home birth, we are in need of more ways of analyzing the workings of those who monitor pregnancy and birth – midwives, obstetricians and their apparatus alike. To try to make women conscious of the safety and value of home birth may be a good strategy (Schoon 1996), but maybe it also takes into explicit account the 'fact' that bodies too have a consciousness, a memory.²⁰ To be cautious, as midwives, about new prenatal diagnostics is the best thing to do²¹ - but we hope to have indicated that more is at stake than the question of whether the information such technologies provide is necessary. For this is not what technologies do: they do inform, but in so doing they require the cartography of the body to change in order to be informative, and they change that body's owner and the one who cares for her.

¹ 8% of all women who are attended in the 'first line' of care, are seen by their GP. We use 'midwife' for both midwives and GP's. See: SIG. (1996).

² Dutch obstetrics has specialists of physiology – midwives – and specialists of pathology – gynecologists.

³ For those who read Dutch, an interesting and shifting discussion about labor pain and epidural can be followed on <http://www.ouders.nl>. In the 1998 archive of the site, women discuss the epidural mainly in connection with other interventions: if I must have a cesarean, is it better to have an epidural or a complete anesthesia? In the 1999 discussion, concentration has shifted to the epidural only: women write they want one and ask where they can get it, and complain about their midwife being not enthusiastic about their desire for pain suppression. Someone even accuses midwives of being motivated by economical reasons in their hesitation to send clients in for an epidural-on-demand, but Croon adequately replies to that accusation: 'Midwives surely have other things on their mind than to guard their income. Our greatest worry is the enormous shortage of midwives and the enormous work-pressure ...'(Croon, M. (1999).

⁴ No one can be held to follow that rule, however, and it is not always practiced. See for examples Verstegen 1997; Iedema-Kuiper 1996.

⁵ Between 1965 and 1978, the percentage went from 68.5 to 35.8% and declined further to 31.6% in 1992. From the group of 81,592 women who were attended by midwives from pregnancy to puerperium, including referrals during labour after which care during puerperium was taken over by the midwife, 58,239 never were referred to the second echelon (SIG 1993). Of this group, 55.3% of the primipara and 66.3% of the multipara delivered at home. The others delivered in hospital with their midwife (Wiegers 1997).

⁶ [W]omen having their first baby increasingly appear to prefer a hospital birth. ... [M]ost women are inclined to repeat that first choice, regardless of whether the birth was free of complications or not ... [F]or women at low risk of obstetrical complications, the outcome of planned home birth is at least as good as the outcome of planned hospital births for first time mothers, and that for other mothers the outcome of planned home birth is significantly better than that of planned hospital birth' (Wiegers 1997, p. 101).

⁷ The idea that a delivery in hospital with one's midwife and, if all goes well, without having the possibility to make use of apparatus and personnel which 'belong' to the second echelon, was for some time said to be a home birth in a different place – a relocated homebirth.

⁸ In 1988, 35% was referred (16,9% during pregnancy and 18,1% during labor), in 1993, 42% was referred (19,6% during pregnancy, 22,4% during labor). See: SIG. (1996). Between 1969 and 1991, the percentage of nulliparous women who started labor with a midwife and were referred to an obstetrician, increased from 10% to 39,1%, for parous women this percentage increased from 2,7% in 1969 to 11,8% in 1991. See Wiegers 1997, p. 82.

⁹ See also Gomart & Hennion 1999, and Latour (forthcoming).

¹⁰ For examples of this kind of reasoning see: Berg (1997); Akrich & Pasveer (1996); Pasveer & Akrich (1996); Berg & Mol (1998).

¹¹ Unless otherwise indicated, all quotes are derived from interviews performed in the course of our research.

¹² A doptone is a hand held sonar device for listening to a baby's heartbeat.

¹³ A very popular sentence is ‘this contraction will go away’ (and the joke: this contraction will always stay’). See Salomé 1997.

¹⁴ Wiegers & Bergs (1994) note that ‘low risk’ women tend to base their decisions about where and how to give birth mostly on their communication with their ‘peers’: family, best friends.

¹⁵ Elsewhere we have analyzed two midwife’s practices to show that what appear to be only personal and subjective ways of going about, perform different obstetrical agenda’s too. See Akrich & Pasveer *Multiplying Obstetrics. Techniques of Surveillance and Forms of Coordination* *Theoretical Medicine* (forthcoming).

¹⁶ In fact, the same kind of argument might go for midwives: if during pregnancy they depend more and more upon excorporated information, how can they continue to trust the principally incorporated event of home birth?

¹⁷ Our idea of training, educating bodies, renders coherent a paradoxical part of Smulders & Croon’s work, as well as that of others about home birth. The gap between ‘You need not learn to give birth. Or rather, you cannot learn it’ and ‘In all cases it helps to know what happens inside your body. And it also helps to have some golden tips that you can apply when it comes to it’ (Smulders & Croon, op. cit. note 15, p. 15), the gap between not learning and learning, nature and culture, can be closed upon theorizing the ‘not learning’ part, theorizing the ‘natural’. Which is, in part, what we have tried to do here. And which is not saying that ‘natural birth’ is a myth, but saying that ‘natural’ childbirth is as much an achievement as is ‘technical’ childbirth.

¹⁸ Duden 1993.

¹⁹ This is not an argument on the medical or obstetrical (dis)advantages of the technology, for we don’t know about that.

²⁰ An extremely rich language of bodies as entities with a proper experience of their own is developed, perhaps accidentally, by Shalev 1999.

²¹ Croon, M. (1998). Prenatale zorg op de helling (Prenatal care in danger). *Tijdschrift voor Verloskundigen*, 23, 11, 757.

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